DATA PROCESSING SYSTEM AUDIT REPORT

of the

TAX AND PERMIT SYSTEM
(TAPS)

by

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INTRODUCTION

This is another in a series of reports on the audit of the City's data processing systems. The System covered in this audit report is the City Clerk's Tax and Permit System (TAPS).

TAPS is a second generation, electric accounting machine (EAM), card oriented system which stores, processes, and makes available tax accounting information and payment records of various accounts administered and/or received by the City Clerk's Tax and Permit Division. TAPS is now being redesigned to a third generation, on-line, terminal oriented, computerized system. Some video and other remote terminals are now in operation on-line to the Data Service Bureau computers for prompt retrieval of information in tax and permit matters.

As ex-officio tax collector, under provisions of the City Charter, the City Clerk enforced, collected, or received from taxpayers, permittees and other agencies, revenue in excess of $242 million during Fiscal Year 1974-75. This revenue came from business taxes, police and fire permit fees, cigarette taxes, transient occupancy taxes, utility users taxes, etc. The administration, collection, and enforcement of City taxes and issuance of permits and business tax registration certificates involve approximately 230,000 active accounts.

In conducting this audit, historical development documentation was reviewed, current operations were observed, proposed operations were evaluated, and personnel in the Office of City Clerk and in the Data Service Bureau were interviewed. The cooperation of these individuals is acknowledged.

This report has been reviewed by the City Clerk and the General Manager Data Service Bureau who concur in the recommendations.

SUMMARY

In 1966, the Board of Administration of the Data Service Bureau authorized the redesign of the City Clerk's Tax and Permit Information System from a second generation, EAM, card-oriented system into a third generation, on-line computerized system. A proposed design of the new system was approved in 1970, but because of delays and problems, the completion date has been successively moved forward from 1971, 1972, 1973, 1974, 1975, and now July, 1976. There are some doubts if this latest date can be achieved, considering the rate of the current development effort. The implementation of the new System can only be installed in the months of July to September due to the critical nature of the tax billing and collection process. If this time frame is not met, an additional one year delay is mandatory.

At the time of the audit, there were still differences between the City Clerk's Office and the Data Service Bureau over the System's design requirements, completion schedules, and adequacy of the System's results. However, as a result of this audit, on August 8, 1975, the TAPS Steering Committee agreed to operate under CAO Rule No. 13, Development of Data Processing Systems.

A commonly-agreed upon plan-of-action which integrates the computer design activities of the Data Service Bureau with the operational activities of the City Clerk's Office did not exist as of August 8, 1975. The City Clerk indicated he could not maintain the work schedules put forward by the Data Service Bureau due to the lack of manpower resources. The City Clerk's TAPS' activities are: preparing user manuals, training personnel, designing new forms, planning back up systems to the computer, planning facility layouts, and planning for the orderly transition from the old system to the new one. City Clerk's resources to do all of these activities are at a critical level. Data Service Bureau resources are not effectively utilized because of indefinite design requirements being prepared by the City Clerk.

In anticipation of having an on-line computerized system in operation in July, 1974, five video terminals and 20 typewriter terminals were installed throughout the City Clerk's City Hall offices and in branch offices throughout the City. Training has been provided, a user manual written, and use of the on-line system was implemented on an interim data base created of the some 230,000 business and tax accounts. However, about 2,600 of these accounts are exceptions to the existing records on the old system. This is

primarily caused by the differences in the way names and addresses are entered in the existing and new systems. Even with the exceptions, it is estimated an annual $100,000 worth of City Clerk benefits are being realized by the current retrieval. Over 2,000 inquiries daily are made on the new system.

Among the potential benefits of the new system is a $421,000 annual savings resulting primarily in the time saved in retrieving information in tax and permit matters. Other benefits include improved service to the public through reduced waiting time; information which is current, accurate, and complete; and employees provided with essential information within a time frame beneficial to the performance of their duties.

A major benefit will result to Data Service Bureau when it completes converting this EAM card-oriented system into a more modern computerized system because of the extreme shortage of employees in DSB who can maintain these old EAM systems.

This audit report prescribes a new development strategy for the continued development of TAPS' which should overcome past problems and promote a better understanding among those concerned.

RECOMMENDATIONS

It is recommended that the City Clerk:

1. Request that City Administrative Officer Rule 13, Development of Data Processing Systems, be invoked on the further development of the TAPS system. (Requested as result of audit, August 8, 1975.)

2. Request assistance of the City Administrative Officer in:

   a. Making a detailed schedule of TAPS design activities, schedules, and resources required, using PERT (Program Evaluation and Review Technique) or some other program control system which will provide a commonly-agreed upon plan-of-action for all concerned.

   b. Advising on a back up system in case of failure of the on-line system.

   c. Reviewing other computer systems similar to TAPS, e.g., State Board of Equalization, County of Los Angeles, and local businesses.

   d. Designing of necessary forms.

   (As a result of audit, request submitted and assistance provided, September 5, 1975.)

3. It is recommended that the General Manager Data Service Bureau:

   a. Allocate only those resources to the TAPS project that can be productively used according to the approved plan-of-action.

   b. Review the TAPS name, address, and other data elements and recommend City data standards for use in this System.

   c. Issue an information bulletin to all City departments and agencies providing standardization for the recording of names, addresses, billing notices, etc., for the most efficient and effective computerization.

FINDINGS

Background

The redesign of the City Clerk's tax and permit information system was approved by the Board of Administration of the Data Service Bureau on March 23, 1966. However, the background work on the design did not start until February, 1968. The work continued for approximately six months, but was dropped due to the added work required to integrate the City's sales tax and alcoholic beverage tax into the on-going operations. This resulted in six months' delay in the redesign effort. Work was resumed in November, 1968, and continued until February, 1969, at which time the personnel working on the redesign effort left City service. Because of unavailable manpower, work was not started again until June, 1969.

The existing system was reviewed by the Data Service Bureau relative to potential savings to be gained by electronic information retrieval over physical search, the number of retrieval terminals required and their cost, the number of billings per month, the manual activities that could be automated, work counts of individual items in the various files (index files, payments records, blotters, etc.), and the extension of these totals into man-hours per year.

The concepts of how the system would look in operation were prepared by the Data Service Bureau and presented to the Tax and Permit Division in March, 1970. The "Proposed System Design of the Tax and Permit System" was approved by the City Clerk on July 10, 1970, and is a prime document guiding the design of the new system.

The Data Service Bureau proceeded with development of the System and the first phase of processing tax and permit records was scheduled for the fall of 1971.

The initial system design target dates indicated that after coding, testing, file establishment and conversion, and parallel runs had been completed, production would begin in April, 1971. Refinements and modifications would continue until December, 1971.

The implementation schedule slipped for various reasons to August, 1972; to August, 1973; to September, 1973; to August 1, 1974; and to June, 1975. At the time of this audit, the planned production on all subsystems was scheduled to begin in July, 1976, but that date is now not feasible, because of design problems.

Proposed TAPS Objectives and Benefits

The overall objective of the redesign from the existing EAM, card-oriented system to a third generation, on-line, computerized system "was to develop a system that, when installed, would be responsive to the needs of the City Clerk's Tax and Permit Division based on that latter's objectives, needs, plans, authority, organizational structure, job functions and inter-relationships, and related ordinances applicable to each of their employees through the medium of on-line data processing system."

Specific objectives and benefits of the redesign were outlined in the proposed system design dated March 11, 1970. Listed below are twelve of the major objectives and proposed benefits of the System:

1. Improve service to the public by reducing waiting time where there is a need to access data on file.

2. Enable Tax and Permit Division personnel to retrieve taxpayer information by account number, name, or address through the use of remote terminals.

3. Reduce the waiting time of personnel in branch offices requesting taxpayer information.

4. Ensure that the information retrieved is current, accurate, and complete.

5. Provide hard copy of retrieved information when required.

6. Provide the ability to retrieve and aggregate information by type of business and by other categories.

7. Provide personnel with essential information within a time frame that would be beneficial to the performance of their duties.

8. Decrease the space required to perform the required functions of the office.

9. Provide the necessary management reports on a regular and request basis.

10. Provide the necessary audit trails for use in controlling the System.

11. Provide the flexibility needed to make necessary changes without affecting normal processing.

12. Have the ability to interface with other data bases.

The 1970 proposed system design also indicated that cost savings to the City would be approximately $196,000 a year.

The Data Service Bureau has an objective of converting all of its old 1401 EAM card oriented systems into a more modern computerized system. There is an extreme shortage of employees in the DSB who can still maintain the programs in these old 1401 systems and several of these are at retirement age.

Current Status of System

The redesign of the TAPS System centers around the following four subsystems:

1. Master Information Subsystem.
2. Payment Information Subsystem.
3. Management Information Subsystem.
4. Audit and Investigation Subsystem (Tentative).

1. Master Information Subsystem - This Subsystem contains an information file with all the taxpayer's information for a specific business location, excluding any payment information. It contains such information as account number, business owner's name, business name, business address, mailing address, type of business, and field enforcement district.

   An interim Master Information File was created of the 230,000 total accounts with the exception of about 1,500 exempt accounts and 1,800 quarterly accounts. The information from this file is now retrievable using either account number, name, or address with on-line CRT on selectric typewriter terminals. All retrievals are not totally accurate. There are about 2,600 accounts out of the total 230,000 active accounts that are exceptions to existing records. These exceptions are now being analyzed, and where possible, changes are being made to the existing records in order to eliminate the exceptions from the existing system to the new one.

Many exceptions exist in the current system where the name or address may have been entered in various ways on different business permits. This causes a mismatch between the existing computer tape records and the new on-line file. Retrieval capability is lost or people have to guess how names or addresses are entered. Work must be scheduled to correct these mismatches. Approximately 14,000 file entries must be analyzed and appropriate corrective action taken, but if not completed soon, it could impact the completion of the system.

An Application Status Change Form is being designed to permit additions, changes, and deletions to the Master Information File. Computerized programs will then be prepared to verify correct data entry into the computer.

2. Payment Information Subsystem - This Subsystem is planned to contain information on regular and delinquent statement billings, audit and investigation billings, field investigation collections, field notices, monies received from the County and the State, accounts receivable billings, parking meter collections, journal vouchers, and refunds. The Subsystem is planned to monitor payments on a daily basis.

   An interim accounts receivable payment subsystem is now available using the on-line terminals. This interim system accumulates, ages, and reports transactions in a ledger report. Currently, the interim system only contains delinquent accounts established by the Billing Unit.

   Effort to finalize the design and implementation of the Payment Information Subsystem was delayed until the Master Information Subsystem was completed. Authority to proceed on the Payment Subsystem design was granted by the Tax and Permit Division to the Data Service Bureau in July, 1975.

3. Management Information Subsystem - This Subsystem is not yet designed. It is planned to provide management with standard and specialized reports from the data base, i.e., daily report of deposits, parking meters, receipts, assistance in preparing collection schedules, staffing analysis, etc.

4. Audit and Investigation Subsystem - This Subsystem is not yet designed. It is proposed that it will include the results of all audits and investigations. It will make available reports of field activities and assist in job scheduling.

In July, 1974, five CRT and 20 typewriter terminals were installed throughout the City Clerk's City Hall offices and in branch offices throughout the City. Training has been provided, a user manual written, and use of the on-line system was implemented on the interim data base. Over 2,000 inquiries are made daily on the interim on-line system.

System Cost

Estimated Development Costs - 1966 to August, 1975

Data Service Bureau	$ 670,000	
City Clerk's Office	200,000	
Total		$ 870,000
Estimated Cost to Complete System		$ 170,000
Total Estimated Development Cost		$1,040,000

Estimated Annual Operating Cost

	Current System	Proposed System	Net Savings
Data Service Bureau	$400,000	$363,000	
City Clerk's Office	439,600	55,000	
	$839,600	$418,000	$421,600

The net savings of the new system can be interpreted to be approximately $2,200 per working day.

Overall Evaluation and Conclusions

Rule 13 Application to TAPS

The redesign of the TAPS System has taken too long. It is costing the City the value of the proposed benefits of the System, conservatively estimated to be $2,000 a day. The past strategy which guided the planning, design, and partial implementation of TAPS did not achieve the expected results. A new strategy is needed to guide the continued development of TAPS. Fortunately, the new strategy is

now available in City Administrative Officer Rule No. 13, Development of Data Processing Systems.

The redesign of the TAPS System was authorized in 1966 before Rule 13 was issued. CAO Rule No. 13 covers the procedures for the development of new or modified data processing systems and outlines the responsibilities of the user department, Data Service Bureau, and the City Administrative Officer. Rule No. 13 provides strategy for the development of efficient and effective systems in the City.

To resolve the conflict in the continued design and implementation activities of the TAPS System and to protect the interests of all concerned, the procedures, as outlined in Rule 13 should be followed before more time and money are spent. Also, a renewed positive commitment is required by all parties for a successful TAPS development. See Recommendation No. 1.

Agreement on Schedule of Activities

There are basic differences between the Data Service Bureau and the City Clerk's Tax and Permit Division over the planning, design, and implementing of the TAPS System. Even at this late date, the City Clerk has not approved the specific design elements of the System.

The Data Service Bureau has assigned six employees to complete the TAPS System in Fiscal Year 1975-76. However, the full utilization of these employees is dependent upon requirements that have to be defined by the City Clerk. The City Clerk's activities are not fully in phase with those of the Data Service Bureau. In fact, a DSB manpower loading schedule indicated that if the TAPS user requirements were not provided to the DSB by July, 1975, computer programming and test could not be completed in time for the July, 1976, System implementation date. See Recommendation No. 3a.

The Data Service Bureau's computerized system design activities are only part of all activities necessary to develop TAPS. The activities being performed by the City Clerk are of equal importance. These activities are: preparing training manuals, conducting training classes, planning a back-up-system of operation, designing new forms, planning facility layouts, and planning the changeover to the new System without disrupting current operations. The Data Service Bureau's design activities must be integrated into the activities conducted by the City Clerk.

It would seem that a commonly-agreed upon program is required which indicates: all necessary system activities in both the City Clerk's Office and the DSB, schedule of events, and resources required for each activity. A well known management tool which can provide program control for TAPS is PERT (Program Evaluation and Review Technique). PERT will assist management to plan, schedule, and evaluate progress of the project. It is suggested that the PERT diagramming technique or some other project control system be used on this project. See Recommendation No. 2a.

System's Expertise to City Clerk

An adequate back up information system has not yet been defined that will replace the on-line computer system when it is down. Because of the heavy loading existing on the City's computer system, down time is a reality, and existing on-line systems have been out-of-service for long periods of time, sometimes several hours per occurrence. A microfiche system has been suggested as a back up to the on-line system, but a feasibility study on a microfiche system has not yet been conducted by someone knowledgeable in this technology. See Recommendation No. 2b.

Personnel in the Management Systems Group, City Administrative Office, have the system expertise and experience in implementing on-line computer systems in the City. Upon request, they are available to provide advice and assistance to City agencies concerning systems and systems analysis. Assistance of this type would greatly benefit the City Clerk in further TAPS development. Expertise is available in forms design, microfilming, on-line computer systems, methods improvement, scheduling, facility layouts, etc. See Recommendation No. 2.

Standardization of TAPS Data

Most of the approximately 2,600 exception items result from uniqueness of various address configurations. Basically, these exceptions could be eliminated by extended detailed programming and manual corrections.

In July, 1975, a Quality Control Group was established in the Tax and Permit Division to check computer input and output. At the time of the audit, the City Clerk's Office had established a schedule

for all data input to go through the Quality Control Group. This will help to insure standardization and quality of data.

Some standardization has taken place, but lacking are exact rules controlling the original data recordation, computer entry, and computer retrieval which will insure that tax and permit name, address, and other data elements could be computer matched with other data bases at the City, County, or State level, particularly the State Board of Equalization. There have been problems in standardizing data on the TAPS System, i.e., inability to extract information unless inquiry is exactly as in data base, and differences between standards and other data elements in the old system and the new one. The standardization of names and addresses has been a problem to all City departments faced with computerizing these types of data.

The Mayor's Executive Directive No. 6 - New Series, Integrated Systems Plan, states the City Administrative Officer has the responsibility for preparing rules for the standardization of data elements and data base development and the Data Service Bureau will have the responsibility for carrying out plans for day-to-day administration of the data base. The standardization of TAPS data should be governed by this Directive. If TAPS is to satisfy the requirement of interfacing with other data bases, standardization to City standards is necessary. See Recommendation No. 3b and 3c.

Review of Other Applications

The State Board of Equalization, some local businesses, and the County have computer applications similar to that which is proposed for TAPS. The current design teams in the City Clerk's Office and the Data Service Bureau have not investigated these applications. Exposure to these systems would be of benefit to the TAPS design. See Recommendation No. 2c.